VERSION WITH MARKINGS TO SHOW CHANGES MADE

~~1. An electronic toy capable of controlling motions arbitrarily in accordance with external inputs, comprising:~~

~~detection means for detection said external inputs;~~

~~storage means for storing information relating to a plurality of motion patterns which moves said electronic toy;~~

~~parameter alteration means for establishing a parameter value in accordance with predetermined time intervals;~~

~~selection means for selecting, upon detection signals being output from said detection means, information on an arbitrary motion pattern among the plurality of motion patterns stored in said storage means responsive to the parameter value set by said parameter alteration means; and~~

~~control means for controlling the electronic toy to move in the motion pattern selected by said selection means.~~

~~2. An electronic toy according to claim 1, wherein said parameter alteration means alternates between a happy mode and grumpy mode in predetermined cycles based on the control parameter which changes together with the lapse in time.~~

~~3. An electronic toy according to claim 1, wherein said parameter alteration means changes the cycle of said happy mode and grumpy mode in accordance with the number of detections by said detection means.~~

~~4. An electronic toy according to claim 1, wherein said selection means selects information on a predetermined motion pattern based upon changes in said parameter values.~~

~~5. An electronic toy according to claim 1, wherein said detection means comprises:~~

~~sound detection means for detecting external sound;~~

~~contact detection means for detecting external contact; and~~

~~light detection means for detecting changes in the brightness of the surrounding light.~~

~~6. An electronic toy according to claim 1, comprising said counter means for counting the number of detection signals output from said detection means, said counter means comprising:~~

~~first counter means for counting the number of detections of said sound detection means;~~

~~second counter means for counting the number of detections of said contact detection means; and~~

~~third counter means for counting the number of detections of said light detection means.~~

~~7. An electronic toy according to claim 6, wherein said selection means selects information on a special motion pattern when the value showing the change in said parameter and the count value of said first to third counter means coincide.~~

~~8. An electronic toy according to claim 1, wherein said storage means comprises:~~

~~a first storage unit for storing data of a plurality of posture motion patterns which changes the posture;~~

~~a second storage unit for storing data of a plurality of sound patterns which changes the sound; and~~

~~a third storage unit for storing data of a plurality of expression patterns which changes the expression.~~

~~9. An electronic toy according to claim 8, wherein said selection means selects a combination of said posture motion pattern, sound pattern, and expression pattern stored in said storage means.~~

~~10. An electronic toy according to claim 8, characterized in that said expression pattern includes a motion pattern for changing at least the size or the shape of the eyes.~~

~~11. An electronic toy according to claim 1, wherein said control means comprises an information processor for controlling the electronic toy, and said detection means comprises a plurality of sensory inputs for generating sensory signals indicative of handling and touching sensory inputs received by said information processor.~~

~~12. An electronic toy according to claim 11, wherein said plurality of sensory inputs comprises a magnetic sensor for generating sensory signals indicative of the presence of a magnet in the vicinity of the magnetic sensory.~~

~~13. An electronic toy according to claim 12, wherein said magnetic sensor is coupled to said information processor for indicating a feeding function comprising a bone having a magnet therein for placement in the vicinity of the magnetic sensor.~~

~~14. An electronic toy according to claim 11, wherein said plurality of sensory inputs comprises a sensor for generating sensory signals indicative of the positioning of apparatus in the vicinity of the electronic toy.~~

~~15. An electronic toy according to claim 11, wherein said plurality of sensory inputs comprise pushbutton switches coupled to said information processor.~~

~~16. An electronic toy according to claim 11, wherein said plurality of sensory inputs comprises infrared light detection.~~

~~17. A control method of an electronic toy, comprising:~~

~~detecting signals output from sensory input sensors for representing external inputs with parameter values responsive to sensory input detection;~~

~~changing the parameter values in accordance with predetermined time intervals;~~

~~selecting, upon detection signals being output from said detecting step, information on an arbitrary motion pattern among the plurality of motion patterns stored in storage means responsive to the parameter value; and~~

~~controlling the electronic toy to move in the selected motion pattern.~~

~~18. A method according to claim 17, comprising the step of providing an infrared communication link as a sensory input for information processing.~~

~~19. A method according to claim 18, comprising the step of causing a plurality of interactive electronic toys to communicate with one another via the infrared communication link.~~

~~20. A method according to claim 17, comprising an audio generation step for generating auditory sensory output related to the environment of the electronic toy.~~

~~21. A method according to claim 20, comprising information processing for coordinating movements of the electronic toy with differing operational states including sleeping, waking, excited, and hungry states with the auditory sensory output to complement the different states.~~

~~22. A method according to claim 17, wherein said parameter alteration means alternates between a happy mode and grumpy mode in predetermined cycles based on the control parameter which changes together with the lapse in time.~~

23. An electronic toy capable of controlling motions arbitrarily in accordance with external inputs, comprising:

a head housing a drive motor and a transmission mechanism for transmitting rotational driving force to said drive motor;

a display provided to the front of said head for displaying the shape of the eyes;

first detection means provided on the top of said head for detecting the pressing thereof;

second detection means for detecting sound;

third detection means for detecting the peripheral brightness;

initialization means for setting the initial mode for a period after the power is turned on until a prescribed time elapses;

fourth detection means for detecting external inputs;

a plurality of counters for counting the number of detections from the first, second, third and fourth detection means while the initial mode is being set by said initialization means;

individual difference setting means for setting individual differences in accordance with the detection means having the highest count value among the respective count values of said plurality of counters;

a body housing a cam mechanism for transmitting rotational driving force to said drive motor via said transmission mechanism;

legs driven by said cam mechanism;

a lower jaw driven by said transmission mechanism;

ears driven by said transmission mechanism;

storage means for storing the respective motion patterns of said legs, lower jaw, and ears; and

a controller for selecting an arbitrary motion pattern among the plurality of motion patterns stored in said storage means in accordance with the timing of detection signals output from said first to third detection means, and controlling said drive motor and the display pattern of said display in accordance with the selected motion pattern.

~~[24. An electronic toy according to claim 23, comprising:~~

~~initialization means for setting the initial mode for a period after the power is turned on until a prescribed time elapses;~~

~~detection means for detecting external inputs;~~

~~a counter for counting the number of detections from said detection means while the initial mode is being set by said initialization means; and~~

~~individual difference setting means for setting individual differences in accordance with the count value of said counter.~~]

25. An electronic toy, comprising:

a body member having a head-shaped member disposed at an upper part of said body member and leg-shaped members movably disposed at lower parts of said body member, said head-shaped member being formed with a display disposed at a face portion of said head-shaped member, ear-shaped members movably coupled to said head-shaped member and a lower jaw-shaped member movably coupled to said head-shaped member;

a driving mechanism having a drive motor, a transmission mechanism functionally coupled to said drive motor so as to transmit a rotational driving force from said drive motor, and a cam mechanism driven by the rotational driving force transmitted from

said transmission mechanism, wherein said ear-shaped members and said lower jaw-shaped member are driven by said transmission mechanism, wherein said leg-shaped members are driven by said cam mechanism;

storage means that stores data indicative of a plurality of motion patterns of said leg shaped members, said lower jaw-shaped member and said ear-shaped members, and data indicative of a plurality of eye expression patterns;

a plurality of sensors including a touch detection sensor disposed on a top of said head-shaped member so as to detect a touching action by a user, a sound detection sensor disposed so as to detect a sound made by the user, and an optical detection sensor disposed so as to detect a peripheral brightness;

a controller electrically coupled to said plurality of detection sensors, said drive motor and said display, wherein said controller selects a motion pattern among said plurality of motion patterns and an eye expression pattern among said plurality of eye expression patterns in accordance with a timing of detection signals received from said detection sensors, and controls said drive motor and said display in accordance with the selected motion and eye expression patterns;

initialization means [~~for setting~~] that sets[~~the~~] an initial mode [~~for a period after~~] when the power is turned on [~~until a prescribed time elapses~~];

[~~detection means for detecting external inputs;~~]

a plurality of counters [~~for counting~~] that respectively count the number of detections [~~from~~] on said plurality of [~~detection means~~] sensors while the initial mode is being set by said initialization means; and

[~~individual difference~~]character setting means [~~for setting individual differences~~]that sets the character of the toy in accordance with [~~the detection means having~~]the highest count value among the respective count numbers[~~values~~] of said plurality of counters.

26. An electronic toy [~~according to claim 24,~~] comprising:

a body member having a head-shaped member disposed at an upper part of said body member and leg-shaped members movably disposed at lower parts of said body

member, said head-shaped member being formed with a display disposed at a face portion of said head-shaped member, ear-shaped members movably coupled to said head-shaped member and a lower jaw-shaped member movably coupled to said head-shaped member;

a driving mechanism having a drive motor, a transmission mechanism functionally coupled to said drive motor so as to transmit a rotational driving force from said drive motor, and a cam mechanism driven by the rotational driving force transmitted from said transmission mechanism, wherein said ear-shaped members and said lower jaw-shaped member are driven by said transmission mechanism, wherein said leg-shaped members are driven by said cam mechanism;

storage means that stores data indicative of a plurality of motion patterns of said leg shaped members, said lower jaw-shaped member and said ear-shaped members, and data indicative of a plurality of eye expression patterns;

sensor means that detects external inputs;

a controller electrically coupled to said sensor means, said drive motor and said display, wherein said controller selects a motion pattern among said plurality of motion patterns and an eye expression pattern among said plurality of eye expression patterns in accordance with a timing of detection signals received from said sensor means, and controls said drive motor and said display in accordance with the selected motion and eye expression patterns;

initialization means that sets an initial mode when the power is turned on;

a counter, which counts the number of detections on said sensor means while the initial mode is being set by said initialization means; and

[~~wherein said individual difference~~] character setting means, which sets [~~individual differences~~] the character of the toy pursuant to whether the count number[~~value~~] of said counter is an odd or even number.

27. An electronic toy [~~according to claim 24,~~] comprising:

a body member having a head-shaped member disposed at an upper part of said body member and leg-shaped members movably disposed at lower parts of said body member, said head-shaped member being formed with a display disposed at a face portion of

said head-shaped member, ear-shaped members movably coupled to said head-shaped member and a lower jaw-shaped member movably coupled to said head-shaped member;

a driving mechanism having a drive motor, a transmission mechanism functionally coupled to said drive motor so as to transmit a rotational driving force from said drive motor, and a cam mechanism driven by the rotational driving force transmitted from said transmission mechanism, wherein said ear-shaped members and said lower jaw-shaped member are driven by said transmission mechanism, wherein said leg-shaped members are driven by said cam mechanism;

storage means that stores data indicative of a plurality of motion patterns of said leg shaped members, said lower jaw-shaped member and said ear-shaped members, and data indicative of a plurality of eye expression patterns;

sensor means that detects external inputs;

a controller electrically coupled to said sensor means, said drive motor and said display, wherein said controller selects a motion pattern among said plurality of motion patterns and an eye expression pattern among said plurality of eye expression patterns in accordance with a timing of detection signals received from said sensor means, and controls said drive motor and said display in accordance with the selected motion and eye expression patterns;

initialization means that sets an initial mode when the power is turned on;

a counter that counts the number of detections on said sensor means while the initial mode is being set by said initialization means; and

[~~wherein said individual difference~~-]character setting means that sets the gender in accordance with the count number [~~value~~-]of said counter, and changes at least one among the expression of the eyes, sound, or motion corresponding to said set gender.

~~28. A computer-readable storage medium, comprising:~~

~~a data acquisition interface for receiving sensory input represented by detection signals responsive to external inputs;~~

~~a control program for establishing and altering a parameter value representative of the received sensory input, said control program changing the parameter value in accordance with predetermined time intervals;~~

~~said control program selecting, upon detection signals being output from said detection means, information on an arbitrary motion pattern among the plurality of motion patterns stored in storage means responsive to the parameter value; and~~

~~said control program controlling the electronic toy to move in the selected motion pattern.~~

29. An electronic toy capable of controlling motions arbitrarily in accordance with external inputs, comprising:

a selection switch for selecting between a character standard mode for performing motions of a standard specification character and a character rearing mode for rearing a character;

a memory for storing an initial setting for said character standard mode or said character rearing mode in accordance with the operation of said selection switch, wherein said character rearing mode is set by an initial setting of said memory for;

an immature period where said controlling data is not renewed at prescribed time intervals;

a rearing period where controlling data is renewed to emotion data with a level of control in accordance with the external inputs during a prescribed period of time; and

a completion-of-rearing period where motions are controlled in accordance with emotion data with a level of control renewed during said rearing period; and

a programmable controller responsive to said memory for performing motions in said character standard mode or said character rearing mode in accordance with the operation of said initial setting means.

30. An electronic toy according to claim 29, wherein said character standard mode is set by an initial setting associated with said memory, said programmable controller controlling motions on the basis of data of said standard mode.

31. An electronic toy according to claim 30, wherein said character rearing mode is set by an initial setting associated with said memory, the controlling data being renewed to provide emotion data with a level of control in accordance with the external inputs [~~number input from outside~~]during a prescribed period of time, and motions controlled pursuant to said renewed emotion data.

32. An electronic toy [~~according to claim 31,~~]capable of controlling motions in accordance with external inputs, comprising:

a character mode selection switch;

initial setting means which, in response to an operation on said character mode selection switch, selects a character mode for the toy from a character standard mode for performing motions of a standard specification character and a character rearing mode for rearing a character; and

a programmable controller that controls motions of the toy in said character standard mode or in said character rearing mode in accordance with said initial setting means,

wherein, when said character standard mode is set, the motions of the toy are controlled in accordance with preset data,

wherein, when said character rearing mode is set, emotion data is renewed in accordance with external inputs, and the motions of the toy are controlled pursuant to said renewed emotion data, in which[~~wherein~~] said character rearing mode [~~is set by an initial setting of said memory for~~]comprises an immature period where said controlling data is not renewed [~~at prescribed time intervals~~]; a rearing period where controlling data is renewed to provide the emotion data [~~with a level of control~~]in accordance with the [~~number~~]external inputs [~~from outside~~]during a prescribed period of time; and a completion-of-rearing period where motions are controlled in accordance with the renewed emotion data[~~with a level of control renewed during said rearing period~~].

33. An electronic toy according to claim [~~31~~] 32, wherein the emotion data is renewed in accordance with the frequency of input of sounds, food, contacts, etc. during said rearing period, and motions are controlled in accordance with said renewed emotion data.

34. An electronic toy according to claim [~~29~~]32, wherein said programmable controller sets either a first controlling flag for performing actions pursuant to at least the content of instructions which are input, or a second controlling flag for performing actions differing from said inputted instructions, and motions are controlled in accordance with the flag set.

35. An electronic toy comprising:

a head-shaped member having a display disposed at a face portion of the head-shaped member, said display comprising a plurality of stacked plates each having a group of holes formed in a pattern, said patterns being formed in different shapes from each other, and a plurality of light sources each disposed at a side face of the corresponding plate so that, when one of said light sources is lit, the light from the lit source enters the corresponding plate and the group of holes formed thereon are illuminated to display the pattern formed with the group of holes;

a smoked plate mounted in front of said display;

memory means that stores data indicative of a plurality of eye expression patterns; and

a controller electrically coupled to said plurality of light sources, wherein said controller selects an eye expression pattern among said plurality of eye expression patterns and controls lighting of one or more of the light sources so as to illuminate the selected group or groups of holes to display the selected eye expression pattern.

36. An electronic toy of claim 35, wherein said plurality of stacked plates are formed from acryl plates, and said plurality of light sources are light emitting diodes (LEDs).

37. An electronic toy of claim 36, further comprising: a body member having said head-shaped member disposed at an upper part of said body member and leg-shaped members movably disposed at lower parts of said body member; and

a driving mechanism having a drive motor electrically coupled to said controller, a transmission mechanism functionally coupled to said drive motor so as to transmit a rotational driving force from said drive motor, and a cam mechanism driven by the rotational driving force transmitted from said transmission mechanism, wherein said leg-shaped members are driven by said cam mechanism.

wherein said memory means further stores data indicative of a plurality of motion patterns of said leg-shaped members,

wherein said controller selects one of said plurality of motion patterns of said leg-shaped members and controls the drive motor so that the leg-shaped members move in the selected motion pattern whereby the toy artificially expresses an emotion by the combination of the selected motion pattern of the leg-shaped members and the selected eye expression pattern.

38. An electronic toy comprising:

a head-shaped member having a display disposed at a face portion of the head-shaped member and formed with a plurality of illumination patterns;

a smoked plate mounted in front of said display;

memory means that stores data indicative of a plurality of eye expression patterns;

sensor means that detects external inputs; and

a controller electrically coupled to said display, wherein said controller selects an eye expression pattern among said plurality of eye expression patterns in response to information derived from said sensor means, and controls said display so as to provide one among said plurality of illumination patterns indicative of the selected eye expression pattern.

39. An electronic toy according to claim 38, further comprising:

a body member having said head-shaped member disposed at an upper part of said body member and leg-shaped members movably disposed at lower parts of said body member; and

a driving mechanism functionally coupled to said leg-shaped members and electrically coupled to said controller;

wherein said memory means further stores data indicative of a plurality of motion patterns for said leg-shaped members,

wherein said controller selects, in response to information derived from said sensor means, an eye expression pattern among said plurality of eye expression patterns and a motion pattern among said plurality of motion patterns for said leg-shaped members, and controls said display so as to provide one among said plurality of illumination patterns indicative of the selected eye expression pattern and controls said drive mechanism so as to move said leg-shaped members in accordance with the selected motion pattern.

40. An electronic toy according to claim 23, wherein said individual difference setting means sets individual differences pursuant to whether the count value of said counter is an odd or even number.

41. An electronic toy according to claim 23, wherein said individual difference setting means sets the gender in accordance with the count value of said counter, and changes at least one among the expression of the eyes, sound, or motion corresponding to said set gender.